

High Resolution Optics

The secret behind HR-1's high resolution is its dual 24-bit converters combined with high quality optics. Samples sit directly above a single microvolume fluorimeter equipped with an LED light source used for fluorescence excitation. Measurement of light is extremely fast and sensitive because of the high quality optics, specialized light source, filter system, and glass capillaries which focus most of the emitted light on the tip of the capillary.



HR-1 High Resolution Optic System

Instrument Specifications

Linear Ramp Rate	0.01°C to 1°C per second
Temperature Range	Ambient to 100°C
Data Acquisition	24 bit temperature and fluorescence analog to digital conversion
Sample Volume	5-20 µl using Roche LightCycler capillary tubes.
Capacity/Throughput	Single sample capillary melter. Typical 40-45 samples per hour with a 0.3°C ramp rate
Laptop Computer	Dell Notebook Computer with Ethernet capabilities
Software	Windows based software includes control and analysis modules
Size	4 x 5.5 x 12 inch / 10.2 x 14 x 30.5 cm (w x h x d)
Weight	5.8 lbs. / 2.65 kg
Power Supply	100 to 240 VAC, 1.3 Amp, 50/60 Hz universal power

LCGreen I Kits

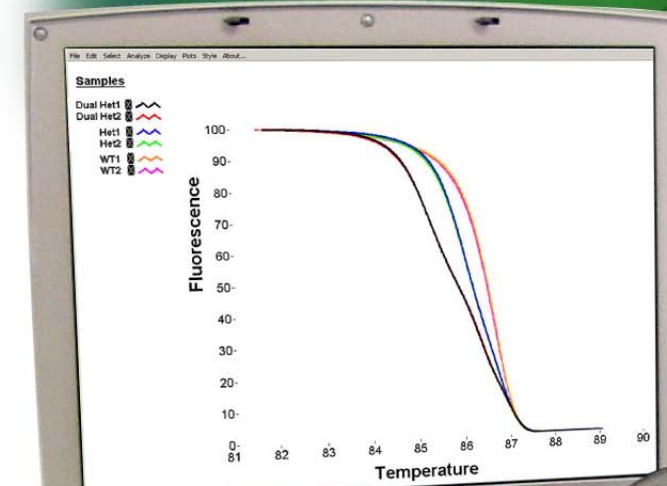
Reactions <small>Based upon 10µl reaction volumes</small>	100 Reactions <small>Included with HR-1 purchase only</small>	400 Reactions <small>Cat. #BCHM-ASY-0003</small>	1,000 Reactions <small>Cat. #BCHM-ASY-0001</small>	10,000 Reactions <small>Cat. #BCHM-ASY-0004</small>
LCGreen I Dye	100 µl (10x Solution)	4 x 100 µl (10X Solution)	4 x 250 µl (10X Solution)	40 x 250 µl (10X Solution)
Reaction Buffer	1 ml - 10X w/10, 20, or 30 mM MgCl ₂ (w/ BSA)	1 ml - 10X w/10, 20, or 30 mM MgCl ₂ (w/ BSA)	1 ml - 10X w/10, 20, or 30 mM MgCl ₂ (w/ BSA)	10 x 1 ml - 10X w/10, 20, or 30 mM MgCl ₂ (w/ BSA)
dNTPs	1 ml -10X (2 mM of each)	1 ml -10X (2 mM of each)	1 ml -10X (2 mM of each)	10 ml -10X (2 mM of each)
BSA	1 ml - 10X (2.5 mg/mL)	1 ml - 10X (2.5 mg/mL)	1 ml - 10X (2.5 mg/mL)	10 x 1 ml - 10X (2.5 mg/mL)
Enzyme diluent	1 ml -1X	1 ml -1X	1 ml -1X	10 x 1 ml -1X

HR01-PRT-0002 Rev 03



High Resolution Melter

HR | 1™ HIGH RESOLUTION MELTER



Pre-Sequencing Gene Scanning and Mutation Detection

Homogenous Single Tube Reaction Mixture

Idaho Technology Inc.

	0.01 - 1° C / sec. Ramp Rate
	Nucleic Acid Melting System
	Analyze up to 45 Samples per Hour
	Compact Size 10 x 14 x 30 cm
	User Friendly Interface
	Laptop Included

High Resolution Melter

HR-1 High Resolution Melter for Nucleic Acids, provides the highest resolution available on the market.

A fast, simple, low cost alternative for **gene scanning** and **mutation detection**.



“Since introducing Idaho Technology Air Thermocycler’s, our products have set the industry standard for DNA research and thermocycling. Once again, we bring convenience and power to the research lab.”

Using our new **LCGreen I dye** in a homogenous amplification reaction mixture, the new HR-1 instrument detects subtle differences in fluorescent signal over temperature. In conjunction with our LCGreen I dye this instrument gives laboratories a simple, fast, cost effective method for pre-sequencing gene scanning.

No probes, no post amplification sample processing or reagent addition, just an easy-to-use, low-cost instrument and chemistry for gene scanning and mutation detection.

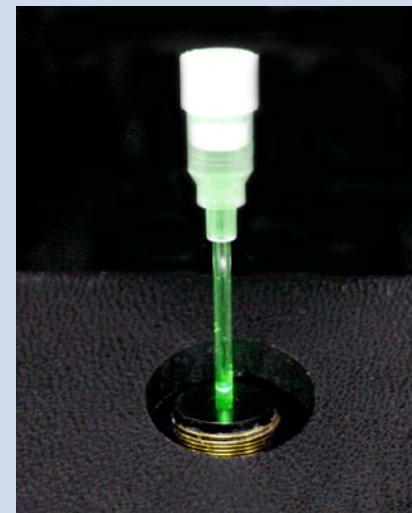
- ⋮ Pre-sequencing gene scanning / mutation detection
- ⋮ Homogenous single tube reaction mixture
- ⋮ Analyze 40-45 samples per hour with a typical 0.3°C/sec ramp rate (post amplification)
- ⋮ Less than \$0.35 per reaction



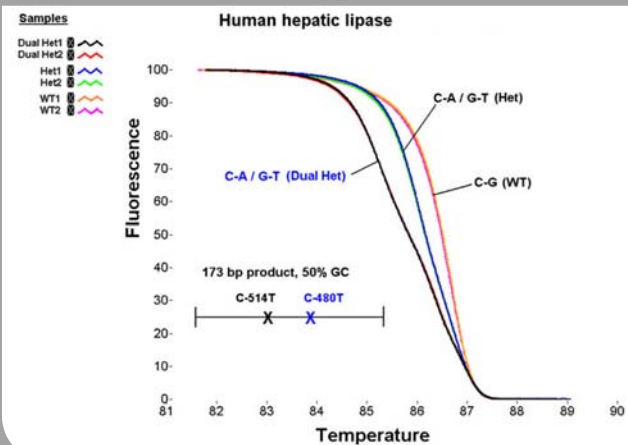
Capillary Tubes

Capillary tubes are the perfect reaction vessels for high resolution melting applications because of their high surface to volume ratio. They are also ideal cuvettes for fluorescence monitoring. Due to their small diameter, the light emitted by the fluorescent dye is concentrated at the tip of the capillary.

The capillaries have an outer diameter of 1.5 mm and a length of 3 cm and can hold sample volumes between 5–20 µl.

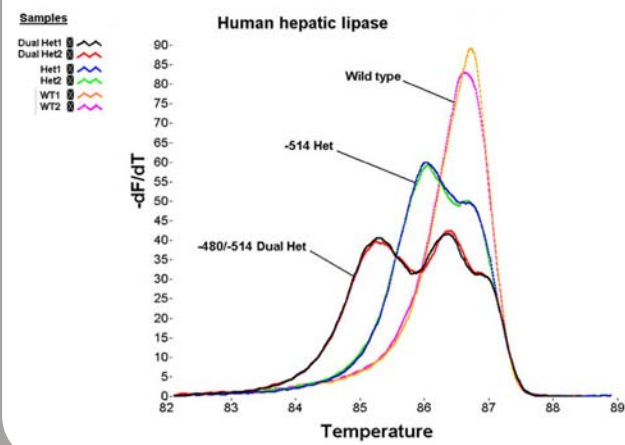


Melting Curves



Slope differences reflect variable heteroduplex species.

Derivative Peaks



Slope derivations make visual assessment easy.

LCGreen™ I

Heteroduplex Melting Dye

Our new LCGreen I dye is manufactured exclusively by Idaho Technology and is designed specifically for high resolution melting curve analysis to detect DNA sequence variants (SNP's, insertions / deletions).

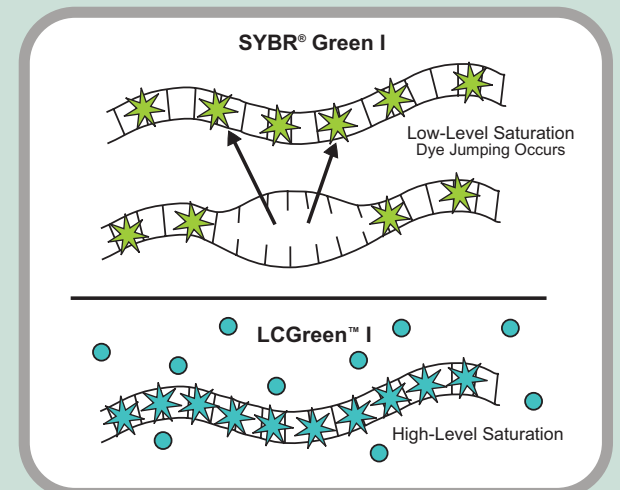
We recommend using the HR-1 for post amplification melting curve analysis. Amplification in capillary cuvettes can be performed in our RapidCycler® instrument, our R.A.P.I.D.® System, or the Roche LightCycler® instrument.

The LCGreen I Gene Scanning kit contains LCGreen I Heteroduplex Melting Dye and amplification reagents (reaction buffer, dNTPs, enzyme diluent) optimized for use in glass capillaries.

LCGreen I dye is provided as a 10X solution. Ten µl reaction volumes are recommended.



Some dsDNA dyes cannot be used at high concentrations, allowing dye redistribution during melting curve analysis.



Saturation of dsDNA binding sites eliminates potential for dye redistribution during melting curve acquisition.